REMARKS

In response to the objection to claims 9, 11 and 13, the formula for gadolinium oxide has been corrected by the insertion of the appropriate subscripts.

Claims 9-12 were rejected under 35 U.S.C.§102(b) as being anticipated by Komiya et al. (Komiya)

Reconsideration is requested.

The claims of the present application are denominated in "mass% of Al_2O_3" while the composition of Komiya is defined in terms of weight % of $Al(PO_3)_3$ etc. This makes it impossible to directly compare the composition of Komiya with the claimed composition . For this reason, the compositions of the ingredients of the examples of Komiya have been converted to mass% on the attached tables for purposes of comparison.

In the glasses of the present invention, the Examiner has urged that the glasses of claims 9 and 11 of the present application are anticipated by Examples 5-12 and 15-20 of Komiya.

The MgF_2, CaF_2, SrF_2 and BaF_2 ingredients are effective for preventing devitrification of the glass and the proper total amount of one or more of these ingredients is 30 – 70 mass% as pointed out in claims 9, 11 and 13. In contrast, the total amount of these ingredients in Examples 5, 6, 8 –12, 15 – 20 of Komiya is less than 30 mass %.

Further, in the present invention Gd_2O_3 is effective for increasing refractive index without decreasing the Abbe number, preventing occurrence of devitrification and improving chemical properties of the glass. If the amount f this ingredient exceeds 20%, it is undesirable because resistivity to devitrification is deteriorated and, therefore, the upper limit of this ingredient is 20% in the claims before the Examiner. In contrast, Example 7 of Komiya comprises Gd_2O_3 in the amounts of 23.85mass% which is outside the range of this ingredient in the present invention.

An advantage derived from a certain ingredient of glass and an amount of the ingredient required for obtaining such advantage are determined by relationship of this ingredient with other ingredients of the glass. Komiya does not disclose or even suggest a structure which satisfies the composition of all ingredients of the glass of the present invention. For these reasons, the Komiya patent fails to anticipate claims 9, 11 or 13 and it is requested that this ground of rejection be withdrawn.

Claims 9-12 were rejected under 35 U.S.C.§102(b) as being anticipated by Otsuka et al.(Otsuka).

Reconsideration is requested.

The claims of the present application point out the invention in terms of mass % while the Otsuka . patent uses mol% to define the invention. Since these units may not be compared, the applicant has attached conversion tables which show the equivalent of the Otsuka compositions in terms of mass%. The Examiner stated that the glasses of claims 9 and 11 of the present invention were anticipated by Examples 1, 2, 6, 8 – 13 and 15 of Otsuka. In response claims 9 and 11 have been amended to point out that the amount of NaF is 0.1mass% which is less than the minimum of 0.15mass % as disclosed in Example 15 of Otsuka . It is noted that Claim 13 points out a composition having an Abbe number within a range of 95.1 -97.1 while Otsuka are limited to compositions having an Abbe number of 75-90.

For these reasons, the Otsuka patent fails to anticipate claims 9-12 and it is requested that this ground of rejection be withdrawn.

Claims 13-14 were rejected under 35 U.S.C.§102(b) as being anticipated by Nozawa.

Reconsideration is requested.

Since the composition of the glasses of Nozawa is defined in weight%, the composition of the glasses disclosed by Nozawa may not be compared with the compositions of the glasses defined by the claims of the present application which are in units of mass%. The attached chart includes a conversion of the composition of Nozawa's glasses the compositions of Nozawa may be compared with the glasses of the present claims. In converting KPF_6 and $BaSiF_6$ in Example 26 of TABLE 2, two methods have been employed. One method is based on a conversion to oxides, namely converting KPF_6 to K_2O and P_2O_5 and converting $BaSiF_6$ to BaO and SiO_2. The other method is based on a conversion to fluorides, namely converting KPF_6 to KF and PF_5 and $BaSiF_6$ to BaF_2 and SiF_4.

The Examiner stated that the glass of claim 13 of the present invention is anticipated by Example 26 of Nozawa. In view of the Examiner's comment, we have amended claims 13 to point out 0-28.30 mass% of aluminum trifluoride which is present to decrease dispersion of the glass and to prevent devitrification. In contrast, the glass of Example 26 of Nozawa comprises AlF_3 in an amount between 29.00% and 29.49% which outside of the range of this ingredient in amended claim 13..

For the above reason, the glass of claim 13 of the present invention is not anticipated by Nozawa and it is requested that this ground of rejection be withdrawn.

An early and favorable action is earnestly solicited.

Respectfully submitted,

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Kuniya
Conversion of Examples
wt%

	MW	5	6	7	8	9	10	11	12	15	16	17	18	19	20
nd		1.56637	1.56879	1.58242	1.54874	1.57211	1.57484	1.57474	1.55275	1.57944	1.57487	1.54122	1.53590	1.54708	1.57274
ν d		73.3	71.5	70.0	71.6	70.1	70.2	70.7	71.6	69.1	69.0	74.9	69.3	74.1	71.5
$Al(PO_3)_3$	268.897	30.0	20.0	20.0	17.0	25.0	25.0	25.0	17.6	20.0	30.0	17.0	30.0	18.8	24.0
$Ba(PO_3)_2$	295.271				10.0										
$Sr(PO_3)_2$	245.564								8.0						
$Ca(PO_3)_2$	198.022														
$Mg(PO_3)_2$	182.249											10.0		8.0	
BaF_2	175.324	45.0	40.0	35.0	22.0	35.0	37.0	33.0	25.6	60.0	60.0	22.0	35.0	25.8	41.0
SrF_2	125.617	20.0	20.0	20.0	13.0	25.0	23.0	27.0	14.4	5.0	5.0	13.0	20.0	14.4	20.0
CaF_2	78.075				15.0				12.0			15.0		12.0	
MgF_2	62.302				8.0				6.4			8.0		6.4	
AlF_3	83.977			5.0											
GdF_3	214.245		5.0						1.0						
Gd_2O_3	362.498	5.0	15.0	20.0	15.0	5.0	10.0	5.0	15.0	15.0	5.0	15.0	15.0	15.0	8.0
La_2O_3	325.809						5.0								
Y_2O_3	225.810							10.0							2.0
Yb_2O_3	394.078					10.0									2.0
															3.0
total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.2	100.0
$MgF_2+CaF_2+SrF_2+BaF_2$		65.0	60.0	55.0	58.0	60.0	60.0	60.0	58.4	65.0	65.0	58.0	[illegible]	58.6	61.0

mol

	MW	5	6	7	8	9	10	11	12	15	16	17	18	19	20
nd		1.56637	1.56879	1.58242	1.54874	1.57211	1.57484	1.57474	1.55275	1.57944	1.57487	1.54122	1.53590	1.54708	1.57274
ν d		73.3	71.5	70.0	71.6	70.1	70.2	70.7	71.6	69.1	69.0	74.9	69.3	74.1	71.0
$Al(PO_3)_3$	268.897	0.1137	0.0758	0.0758	0.0644	0.0947	0.0947	0.0947	0.0667	0.0758	0.1137	0.0644	0.1137	0.0705	0.0909
$Ba(PO_3)_2$	295.271				0.0339										
$Sr(PO_3)_2$	245.564								0.0326						
$Ca(PO_3)_2$	198.022														
$Mg(PO_3)_2$	182.249											0.0549		0.0404	
BaF_2	175.324	0.2567	0.2281	0.1996	0.1255	0.1998	0.2110	0.1882	0.1460	0.3422	0.3422	0.1255	0.1996	0.1472	0.2339
SrF_2	125.617	0.1592	0.1592	0.1592	0.1035	0.1990	0.1831	0.2149	0.1146	0.0398	0.0398	0.1035	0.1592	0.1146	0.1592
CaF_2	78.075				0.1921				0.1537			0.1921		0.1537	
MgF_2	62.302				0.1284				0.1027			0.1284		0.1027	
AlF_3	83.977			0.0595											
GdF_3	214.245		0.0233						0.0047						
Gd_2O_3	362.498	0.0138	0.0414	0.0552	0.0414	0.0138	0.0276	0.0138	0.0414	0.0414	0.0138	0.0414	0.0414	0.0414	0.0221
La_2O_3	325.809						0.0153								
Y_2O_3	225.810							0.0443							0.0081
Yb_2O_3	394.078					0.0254									0.0089
															0.0076
total		0.5	0.5	0.5	0.7	0.5	0.6	0.6	0.7	0.6	0.5	0.7	0.5	0.7	0.5
F	18.9984	0.8816	0.8447	0.8963	1.099	0.7973	0.7889	0.8063	1.0482	0.7641	0.7641	1.099	0.7177	1.0564	0.7861

part of weight

	MW	5	6	7	8	9	10	11	12	15	16	17	18	19	20
nd		1.56637	1.56879	1.58242	1.54874	1.57211	1.57484	1.57474	1.55275	1.57944	1.57487	1.54122	1.53590	1.54708	1.57274
ν d		73.3	71.5	70.0	71.6	70.1	70.2	70.7	71.6	69.1	69.0	74.9	69.3	74.1	71.5
P_2O_5	141.945	24.20	16.14	16.14	16.52	20.17	20.17	20.17	16.03	16.14	24.20	21.60	24.20	20.74	19.36
Al_2O_3	101.961	5.80	3.86	3.86	3.28	4.83	4.83	4.83	3.40	3.86	5.80	3.28	5.80	3.59	4.84
BaO	153.326				6.19										
SrO	103.619								3.38						
CaO	56.077														
MgO	40.304											2.21		2.27	
BaF_2	175.324	45.00	40.00	35.00	22.00	35.00	37.00	33.00	25.60	60.00	60.00	22.00	35.00	25.80	41.00
SrF_2	125.617	20.00	20.00	20.00	13.00	25.00	23.00	27.00	14.40	5.00	5.00	13.00	20.00	14.40	20.00
CaF_2	78.075				15.00				12.00			15.00		12.00	
MgF_2	62.302				8.00				6.40			8.00		6.40	
AlF_3	83.977			5.00											
GdF3	214.245		5.00						1.00						
Gd_2O_3	362.498	5.00	15.00	20.00	15.00	5.00	10.00	5.00	15.00	15.00	5.00	15.00	15.00	15.00	8.00
La_2O_3	325.809						5.00								
Y_2O_3	225.810							10.00							2.00
Yb_2O_3	394.078					10.00									2.00
															3.00
total		75.8	83.9	83.9	81.5	79.8	79.8	79.8	81.2	83.9	75.8	78.5	75.8	79.5	80.6
F	18.9984	15.802	16.049	17.028	20.879	16.147	14.979	15.519	19.913	14.516	14.516	20.879	15.639	19.691	14.935

mass%

	MW	5	6	7	8	9	10	11	12	15	16	17	18	19	20
nd		1.56637	1.56879	1.58242	1.54374	1.57211	1.57484	1.57474	1.55275	1.57944	1.57467	1.54122	1.53590	1.54703	1.57274
ν d		73.3	71.5	70.0	71.6	70.1	70.2	70.7	71.6	69.1	69.0	74.9	69.5	74.1	71.6
P_2O_5	141.945	31.93	19.24	19.24	22.73	25.27	26.27	25.87	23.19	19.24	31.93	27.40	31.93	26.10	24.01
Al2O3	101.961	7.68	4.61	4.61	4.03	6.06	6.06	6.06	4.19	4.61	7.68	4.18	7.68	4.62	5.76
BaO	153.326				6.37										
SrO	103.619								4.16						
CaO	56.077														
MgO	40.304											2.52		2.86	
BaF_2	175.324	59.37	47.70	41.73	27.00	43.84	46.85	41.84	31.64	71.64	79.16	23.03	48.16	22.47	50.82
SrF_2	125.617	20.39	23.86	23.86	16.96	31.38	28.31	33.82	17.74	5.96	6.60	16.86	26.30	18.12	24.80
CaF_2	78.075				18.41				14.76			19.11		15.10	
MgF_2	62.302				9.82				7.09			10.18		8.05	
AlF_3	83.977			6.96											
GdF_3	214.245		5.96						1.23						
Gd_2O_3	362.498	6.60	17.89	23.85	13.41	6.26	12.53	6.26	18.48	17.39	6.60	19.11	19.79	18.83	9.92
La_2O_3	325.809						6.26								
Y_2O_3	225.810							12.53							2.48
Yb_2O_3	394.078					12.53									2.43
															3.72
total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
F	18.998	20.85	19.14	20.30	25.83	18.07	18.76	19.10	24.59	17.31	19.15	26.80	17.89	24.78	18.52
$MgF_2+CaF_2+SrF_2+BaF_2$		85.76	71.54	65.58	71.19	75.16	75.16	75.16	71.64	77.61	85.76	73.89	72.56	75.75	75.65

Otsuka
Conversion of Examples
ml%

	MW	1	2	6	8	9	10	11	12	13	15
nd		1.5054	1.5097	1.5116	1.5011	1.5015	1.5058	1.5181	1.5037	1.4950	1.5304
νd		81.0	80.7	79.3	82.1	82.9	82.8	79.3	82.0	82.8	77.0
P_2O_5	141.945	14.5	12.1	14.7	11.5	13.6	16.5	12.4	11.6	13.4	17.4
Al2O3	101.961	3.5	1.5	3.5	3.5	4.3	5.1	3.3	3.[illegible]	4.1	4.5
BaO	153.326	1.0	6.6	2.2	1.0	0.8	1.2	0.7	1.[illegible]	1.2	3.8
AlF_3	88.977	22.0	22.8	19.0	22.3	16.6	17.8	23.0	19.7	17.8	16.8
MgF_2	62.302	7.0	3.0	15.0	6.7	4.8	3.9	3.7	4.[illegible]	3.9	3.2
CaF_2	78.076	14.0	10.5	15.0	10.5	10.5	8.3	14.3	8.[illegible]	8.3	8.0
SrF_2	125.617	20.0	17.3	11.6	20.6	25.3	13.0	12.4	11.2	32.7	20.2
BaF_2	175.324	12.0	19.2	12.1	18.1	18.3	29.9	23.4	33.9	13.5	21.4
NaF	41.988	0.5	1.0	2.4	1.5	1.1	3.2	1.3	1.[illegible]	3.2	0.5
GdF_3	214.245				0.9						
Gd_2O_3	362.498	2.5	3.0	2.5	3.4	1.2	1.1	5.5	3.[illegible]	1.9	4.2
Y_2O_3	225.810					3.5					
Yb_2O_3	394.078			2.0							
CaO	56.077	3.0									
MgO	40.304		3.0								
total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

part of weight

	MW	1	3	6	8	9	10	11	12	13	15
nd		1.5054	1.5097	1.5116	1.5011	1.5015	1.5058	1.5181	1.5037	1.4950	1.5304
νd		81.0	80.7	79.3	82.1	82.9	82.8	79.3	82.0	82.8	77.0
P_2O_5	141.945	2058.2	1717.5	2086.6	1632.4	1930.4	2342.1	1760.1	1646.6	1902.1	2469.8
Al2O3	101.961	356.9	152.9	356.9	356.9	438.4	520.0	336.5	336.5	418.0	458.8
BaO	153.326	153.3	1012.0	337.3	153.3	122.7	184.0	107.3	260.7	184.0	582.6
AlF_3	83.977	1847.5	1914.7	1595.6	1872.7	1394.0	1494.8	1931.5	1654.3	1494.8	1410.8
MgF_2	62.302	436.1	186.9	934.5	417.4	299.0	243.0	230.5	299.0	243.0	199.4
CaF_2	78.075	1093.0	819.8	1171.1	819.8	819.8	648.0	1116.5	655.8	648.0	624.6
SrF_2	125.617	2512.3	2173.2	1457.2	2587.7	3178.1	1633.0	1557.6	1406.9	4107.7	2587.5
BaF_2	175.324	2103.9	3366.2	2121.4	3173.4	3208.4	5242.2	4102.6	5943.5	2366.9	3751.9
NaF	41.988	21.0	42.0	100.8	63.0	46.2	134.4	54.6	75.[illegible]	134.4	21.0
GdF_3	214.245	0.0	0.0	0.0	192.8	0.0	0.0	0.0	0.0	0.0	0.0
Gd_2O_3	362.498	906.2	1087.5	906.2	1232.5	435.0	398.7	1993.7	1305.0	688.7	1522.5
Y_2O_3	225.810	0.0	0.0	0.0	0.0	790.3	0.0	0.0	0.0	0.0	0.0
Yb_2O_3	394.078	0.0	0.0	788.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CaO	56.077	168.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MgO	40.304	0.0	120.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
total		######	######	######	######	######	######	######	######	######	######
F	18.9984	3277.2	3218.3	3168.9	3474.8	3205.0	3168.9	3379.8	3372.2	3294.3	2978.3

mass%

	MW	1	2	6	8	9	10	11	12	13	15
nd		1.5054	1.5097	1.5116	1.5011	1.5015	1.5058	1.5181	1.5087	1.4950	1.5304
νd		81.0	80.7	79.3	82.1	82.9	82.8	79.3	82.0	82.8	77.0
P_2O_5	141.945	17.66	13.64	17.60	13.06	15.25	18.24	13.34	12.12	15.61	18.19
Al2O3	101.961	3.06	1.21	3.01	2.85	3.46	4.05	2.65	2.48	3.43	3.38
BaO	153.326	1.32	8.04	2.85	1.23	0.97	1.43	0.81	1.92	1.51	4.29
AlF_3	83.977	15.85	15.20	13.46	14.98	11.01	11.64	14.64	12.13	12.26	10.39
MgF_2	62.302	3.74	1.48	7.88	3.34	2.36	1.89	1.75	2.20	1.99	1.47
CaF_2	78.075	9.38	6.51	9.88	6.56	6.47	5.06	8.46	4.83	5.32	4.60
SrF_2	125.617	21.55	17.26	12.29	20.70	25.10	12.72	11.81	10.36	33.70	18.69
BaF_2	175.324	18.05	26.73	17.89	25.38	25.34	40.83	31.10	43.76	19.42	27.63
NaF	41.988	0.18	0.33	0.85	0.50	0.36	1.05	0.41	0.56	1.10	0.15
GdF_3	214.245	0.00	0.00	0.00	1.54	0.00	0.00	0.00	0.00	0.00	0.00
Gd_2O_3	362.498	7.77	8.64	7.64	9.86	3.44	3.11	15.11	9.61	5.56	11.21
Y_2O_3	225.810	0.00	0.00	0.00	0.00	6.24	0.00	0.00	0.00	0.00	0.00
Yb_2O_3	394.078	0.00	0.00	6.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	56.077	1.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	40.304	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
F	18.9984	28.1	25.6	26.7	27.8	25.3	24.7	25.6	24.8	27.0	21.9

Nozawa
Conversion of Example 26
wt%

	MW	26
nd		1.43937
ν d		95.3
KPF_6	184.062	2.00
$BaSiF_6$	279.408	4.00
AlF_3	80.977	29.00
YF_3	145.901	3.00
MgF_2	63.302	4.00
CaF_2	78.076	15.00
SrF_2	125.617	11.00
BaF_2	175.824	28.00
P_2O_5	141.945	4.00
total		100.0
F	18.998	

When all of KPF6 and BaSiF6 was converted into oxide··>26-a
When all of KPF6 and BaSiF6 was converted into fluoride··>26-b

mol

	MW	26-a	26-b
nd		1.43937	1.43937
ν d		95.3	95.3
P_2O_5	141.945	0.034	0.028
PF_5	125.966		0.011
K_2O	94.196	0.005	
KF	58.097		0.011
BaO	153.326	0.014	
BaF_2	175.324	0.160	0.174
SiO_2	60.084	0.014	
SiF_4	104.079		0.014
AlF_3	83.977	0.345	0.345
YF_3	145.901	0.021	0.021
MgF_2	62.302	0.064	0.064
CaF_2	78.075	0.192	0.192
SrF_2	125.617	0.088	0.088
total		0.937	0.948
F	18.998	2.105	2.256

part of weight

	MW	26-a	26-b
nd		1.43937	1.43937
ν d		95.3	95.3
P_2O_5	141.945	4.771	4.000
PF_5	125.966	0.000	1.869
K_2O	94.196	0.512	0.000
KF	58.097	0.000	0.631
BaO	153.326	2.195	0.000
BaF_2	175.324	28.000	30.610
SiO_2	60.084	0.860	0.000
SiF_4	104.079	0.000	1.490
AlF_3	83.977	29.000	29.000
YF_3	145.901	3.000	3.000
MgF_2	62.302	4.000	4.000
CaF_2	78.075	15.000	15.000
SrF_2	125.617	11.000	11.000
total		98.338	100.000
F	18.998	39.989	42.860

mass%

	MW	26-a	26-b
nd		1.43937	1.43937
ν d		95.3	95.3
P_2O_5	141.945	4.85	4.00
PF5	125.966	0.00	1.87
K_2O	94.196	0.52	0.00
KF	58.097	0.00	0.63
BaO	153.326	2.23	0.00
BaF_2	175.324	28.47	30.61
SiO_2	60.084	0.87	0.00
SiF_4	104.079	0.00	1.49
AlF_3	83.977	29.49	29.00
YF_3	145.901	3.05	3.00
MgF_2	62.302	4.07	4.00
CaF_2	78.075	15.25	15.00
SrF_2	125.617	11.19	11.00
total		100	100
F	18.998	40.67	42.86